

CLAIMS

1. A method of manufacturing an electronic part which is provided with plural wiring patterns and an insulating layer that is interposed between the wiring patterns and in which electrical connection between the wiring patterns is established through an interlayer connecting portion that penetrates the insulating layer, characterized in that:
  - 10 a first step of forming the wiring pattern and a columnar conductor, and a second step of: bonding an insulating sheet from an upper side thereof; pressing the insulating sheet to a height of the columnar conductor with the columnar conductor as a stopper; and conforming a thickness of the sheet to the height of the columnar conductor to form a layer having a uniform thickness are repeatedly performed; and
  - 20 the columnar conductor, which determines a thickness of the layer, is used as the interlayer connecting portion.
2. A method of manufacturing an electronic part which is provided with plural wiring patterns and an insulating layer that is interposed between the wiring patterns and in which electrical connection between the wiring patterns is established through an

interlayer connecting portion that penetrates the insulating layer, characterized in that:

a first step of forming the wiring pattern and a columnar conductor, a second step of: bonding an  
5 insulating sheet from an upper side thereof; pressing the insulating sheet to a height of the columnar conductor with the columnar conductor as a stopper; and conforming a thickness of the sheet to the height of the columnar conductor to form a layer having a  
10 uniform thickness, and a third step of forming an uneven pattern for increasing an adhesion strength between the wiring pattern and the columnar conductor on a surface of the layer, which is formed in the second step are repeatedly performed; and  
15 the columnar conductor, which determines a thickness of the layer, is used as the interlayer connecting portion.

3. A method of manufacturing an electronic part  
20 which is provided with plural wiring patterns and an insulating layer that is interposed between the wiring patterns and in which electrical connection between the wiring patterns is established through an interlayer connecting portion that penetrates the  
25 insulating layer, characterized in that:

a first step of forming the wiring pattern and a columnar conductor, a second step of: bonding an

insulating sheet, which adheres to a cover layer through an uneven pattern, from an upper side thereof; pressing the insulating sheet to a height of the columnar conductor with the columnar conductor as  
5 a stopper; and conforming a thickness of the sheet to the height of the columnar conductor to form a layer having a uniform thickness, and a third step of: removing the cover layer from a surface of the layer, which is formed in the second step, through a  
10 chemical reaction; and exposing the uneven pattern for increasing an adhesion strength between the wiring pattern and the columnar conductor are repeatedly performed; and  
the columnar conductor, which determines a  
15 thickness of the layer, is used as the interlayer connecting portion.

4. A method of manufacturing an electronic part according to claim 3, characterized in that:  
20 particles having a spacer function are mixed into the resin sheet;  
the particles are sandwiched between the columnar conductor and the cover layer in the second step to form a thin film insulating layer on an upper  
25 surface of the columnar conductor; and  
after the uneven pattern is exposed in the third step, the thin film insulating layer is removed.

5. A method of manufacturing an electronic part according to claim 4, characterized in that a thickness of the thin film insulating layer is between 1 to 15  $\mu\text{m}$ .

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6. A method of manufacturing an electronic part according to any one of claims 1 to 5, characterized in that the columnar conductor is formed by a metal plating process.

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7. An electronic part, comprising wiring patterns and insulating layers that respectively cover the wiring patterns arranged at least in a thickness direction thereof in plural numbers, 15 characterized in that:

the wiring patterns, which are located while sandwiching the insulating layer, are connected to each other through a columnar conductor of which inside is formed dense; and

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a height of each of the insulating layers is conformed to a height of the columnar conductor.

25 8. An electronic part according to claim 7, characterized in that the columnar conductor is formed by a metal plating method.